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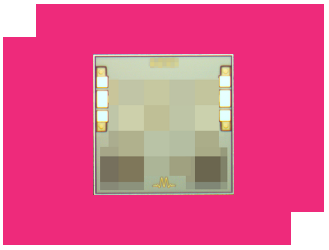
MEQ12-7ACH

Passive GaAs MMIC 7GHz Equalizer

DEVICE OVERVIEW

General Description

The MEQ12-7ACH passive MMIC equalizer die is an ideal solution for compensating for low pass filtering effects in RF/microwave and high speed digital systems. They provide positive slope from DC to 7GHz with DC attenuation options between 3 and 12dB. The unique design offers superior return loss to competitors. GaAs MMIC technology provides consistent unit-to-unit performance in a small, low cost form factor.



Download s-parameters here

Features

- DC attenuation options from 3 to 12dB
- Typical Insertion Loss 0.5dB at 7GHz
- VSWR < 1.3:1 Over Entire Band

Applications

- RF Transceivers
- High-Speed Data
- Telecom
- Cable Loss Compensation
- Amplifier Compensation

Functional Block Diagram

Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MEQ12-7ACH	Passive GaAs MMIC 7GHz Equalizer	CH	REACH RoHS	Released	EAR99

Table Of Contents

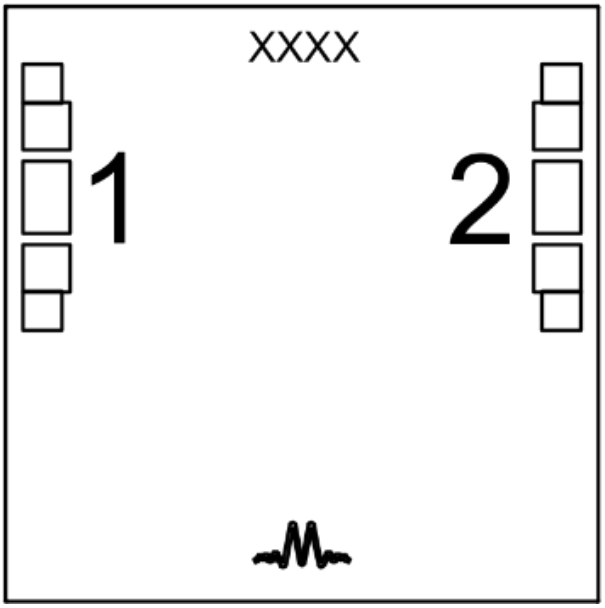
Revision History

Revision Code	Revision Date	Comment
-	2017-11-01	Datasheet Initial Release
A	2018-08-01	Evaluation Kit: MEQ7CH-KIT
B	2019-03-01	Updated ESD Rating
C	2019-05-01	Added Chip Dimension Tolerance Spec
D	2019-08-01	Added signal pad dimensions call-out, updated tolerance spec

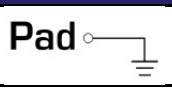
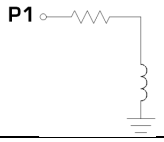
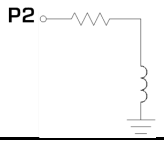
Port Configuration and Functions

Port Diagram

A top-down view of the MEQ12-7A CH package outline drawing is shown below. The MEQ equalizers are symmetrical allowing Port 1 or Port 2 to be used as the input.



Port Functions

Port	Function	Description	DC Equivalent Circuit
Pad	Ground	CH package ground path is provided through the substrate and ground bond pads.	
Pad 1	Input/Output	Port 1 is DC connected to ground through a resistor. DC block is required if voltage present.	
Pad 2	Output/Input	Port 2 is DC connected to ground through a resistor. DC block is required if voltage present.	

Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	100	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
Minimum Storage Temperature	125	°C
Port 1 DC Current	40	mA
Port 2 DC Current	40	mA
Power Handling, at any Port	30	dBm

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	1.25 x 1.25 mm

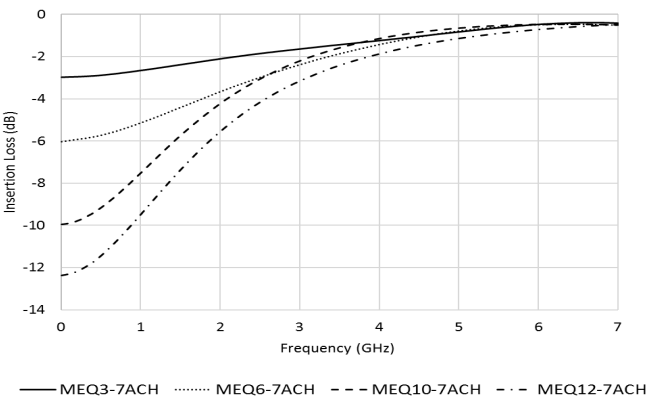
Electrical Specifications

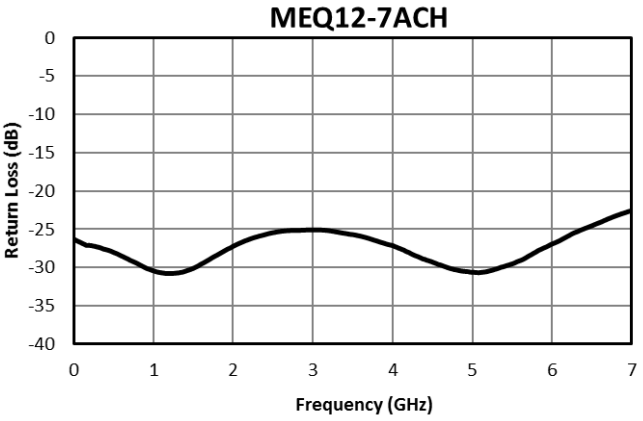
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the equalizer in a CH package with a sine wave input applied to port 1.

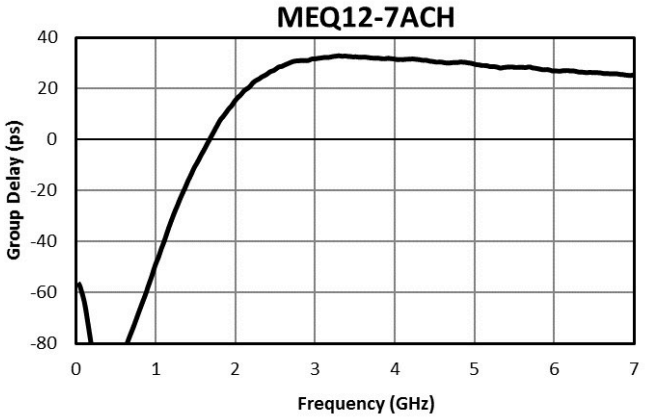
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Insertion Loss	Freq = 7GHz	7	7	-	0.5	-	dB
Insertion Loss at DC	Freq = 0GHz	0	0	-	12	-	dB
Return Loss	Freq = 7GHz	0	7	-	29	-	dB

Equalizer is symmetrical. Reverse measurement is equivalent to forward measurement.

Typical Performance Plots







Die Mounting Recommendations

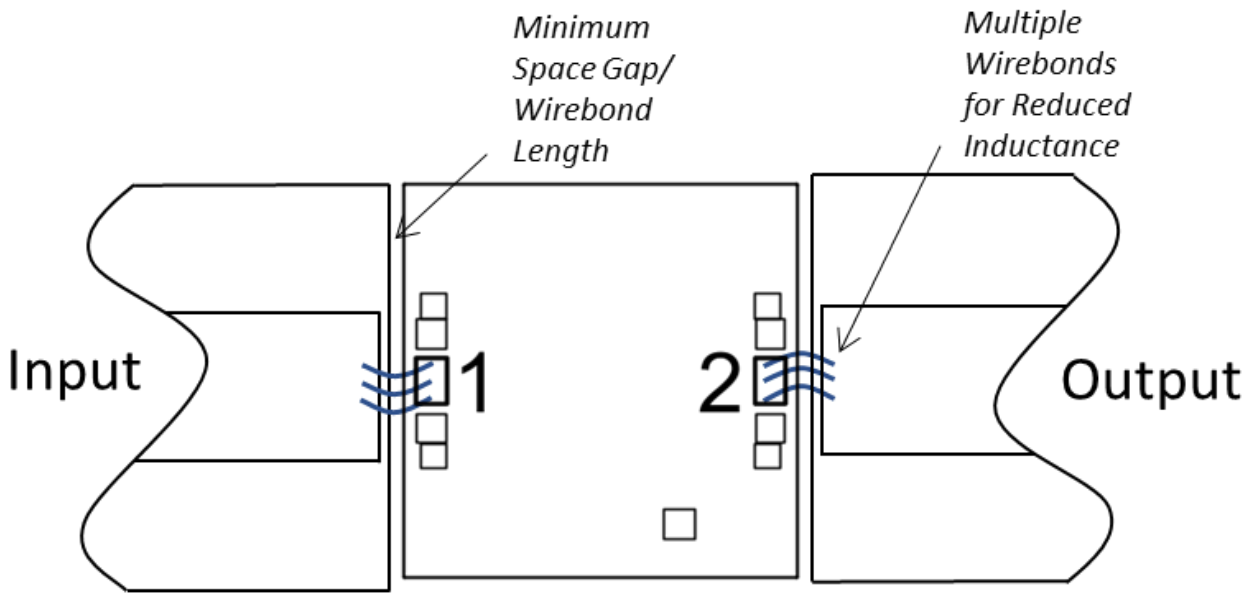
Mounting and Bonding Recommendations

General Handling
Chips should be handled with care using tweezers or a vacuum collet. Users should take precautions to protect chips from direct human contact that can deposit contaminants, like perspiration and skin oils on any of the chip's surfaces.

Static Sensitivity
GaAs MMIC devices are sensitive to ESD and should be handled, assembled, tested, and transported only in static protected environments.

Cleaning and Storage: Do not attempt to clean the chip with a liquid cleaning system or expose the bare chips to liquid. Once the ESD sensitive bags the chips are stored in are opened, chips should be stored in a dry nitrogen atmosphere.

Bonding Diagram



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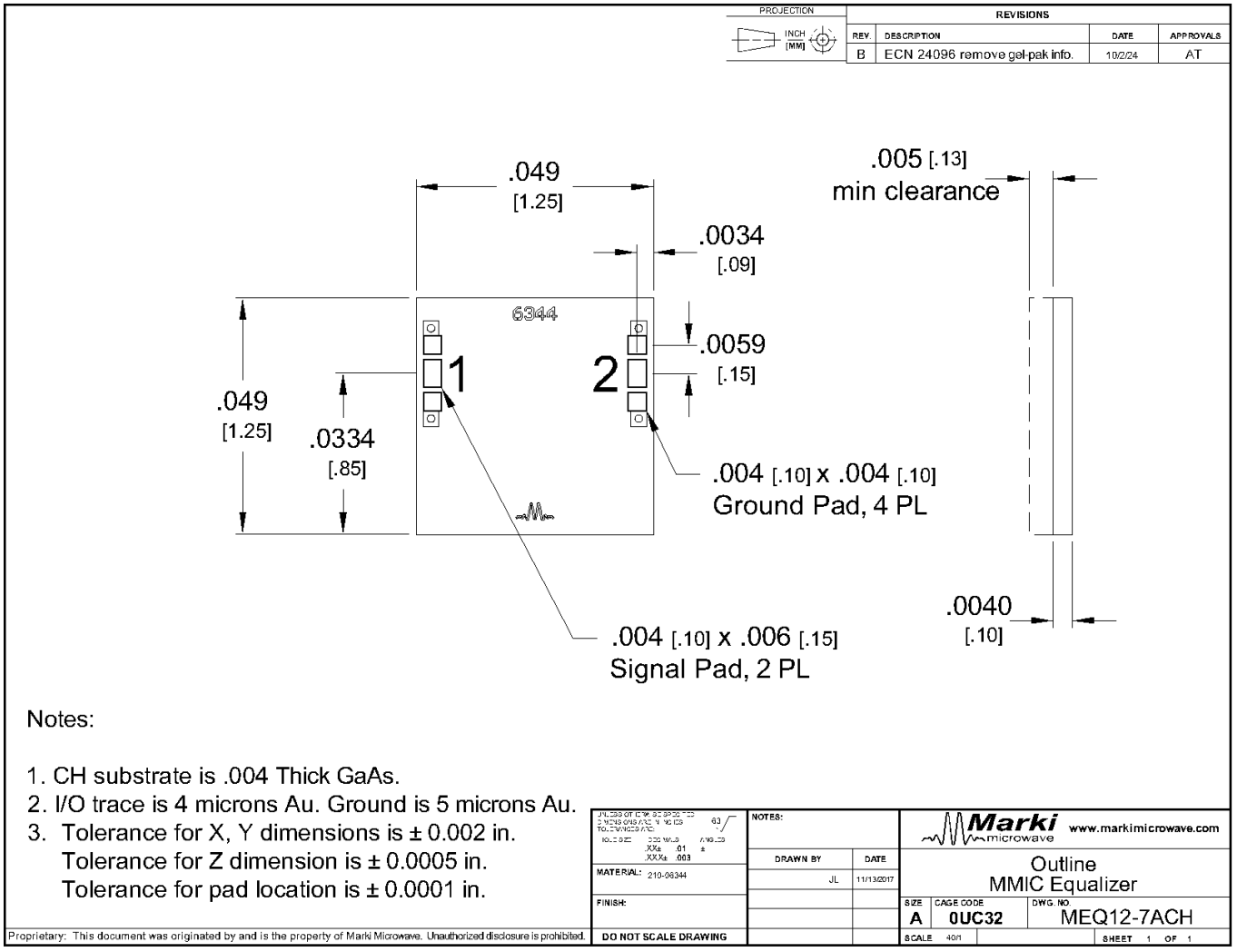
Mechanical Data

Outline Drawing

Download : Outline 2D Drawing



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